THE RELATION OF THE INDIVIDUAL PROJECT TO THE CLASSROOM TEACHING OF VOCATIONAL AGRICULTURE IN KANSAS

by

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INTRODUCTION

The Origination of the Project Method in Education

Modern educators are sometimes inclined to regard the project method of teaching as a product of their own thinking. It has been a means of taking education from its cloistered seclusion for a favored few, and making it useful and, therefore, desirable for the masses. The desirability of this is obvious in view of the creation and development of tax supported educational institutions. However, it is conceivable that project teaching antedates teaching by the printed or spoken word. One has but to use his imagination to picture prehistoric man instructing members of his family or clan in the art of setting a trap, building a crude shelter, or caring for a patch of maize, not by lecture, or carvings on stone, but by actually performing the jobs. Here is found all the managerial and operative phases of modern project teaching. As civilization progressed, the managerial became separated from the operative. Theory began to enter the educational process through the medium of the printed word and gradually to supplant the practical. Theories could be and were created, advanced, and studied, apart from the activities of the manual workers. And so,

gradually but definitely, the gap widened between the man mentally trained and the man skilled only with his hands. This condition existed throughout the early centuries of the present civilization and until late in the nineteenth century. Project teaching was in the discard as being unsuitable for scholarly classical or academic training.

The Project Method of Teaching in General Education

The project method of teaching was due to return to the field of education. People everywhere began demanding that the money spent by them in the form of taxes for the support of public schools be used for their children. Educators, too, began to see that classroom teaching must be done in the light of actual circumstances. It is to their credit that they saw this need before it was forced upon them. Accordingly, they began looking about for some means whereby the fundamental learning processes might be provided in the light of the practical. Arithmetic problems were adorned with terms familiar to the pupil; grammar was applied to everyday language; and so on. However, over in the field of agricultural education, at the same time, this practical education was being carried still farther. Instead of pupils studying "about" certain problems, they were actually studying the problems themselves in their natural surroundings.

Here, perhaps, was the birth of the present day project teaching although still unknown by that name. It has been truly said, "The project idea is the natural outgrowth of the great unrest in the school program which had its beginning during the reconstruction period after the Civil War".[1] The term "project" was not to find its way into the field of education until 1908. It was David Snedden who created this new word for the vocabulary of educators by his work in the field of vocational agriculture education. It was not until three years later that any legislation relating to project teaching was passed. The initial and decided success of project teaching in this field soon was noticed by other educators, and was later applied to all branches of education.

The pendulum had swung back. The public response to this new method of teaching the vocations demanded it for the cultural subjects as well. Soon pupils were studying music, languages, sciences, and all else by projects. Enthusiasm was high. Here, at last, was a means by which the dull pupil, the disinterested pupil, and the more scholastically inclined pupil could be induced to do more and better work.

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1 Dadisman, Samuel H. Methods of Teaching Vocational Agriculture. The Gorham Press, Boston, Massachusetts, p.42, 1921.

The advent of the project into the classroom has been characterized as "an echo from a noisy world; an intrusion upon the quiet of the school, like a sharp train whistle, or a noisy street wagon".[1] However, the success which marked project teaching in the vocational field was not always evident in other fields. The explanation[2] has been advanced that life-like situations prevalent in the vocational fields could not always be duplicated in the academic classroom. Instead of pupils carrying through to successful completion some one project, they merely studied about projects so conducted by some other person. Further analogy[3] is made by likening project learning to a person watching a football game. In vocational education "participation is real, not vicarious".

The widespread use of project teaching in the field of general education has resulted in often misconstruing the term. Some writers prefer to replace "project" with "unit" or "problem". Perhaps Stormzand distinguishes best when he says the "problem" is only on the mental plane and becomes a

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1 McMurray, Charles A. Teaching by Projects. The Macmillan Company, New York, p.5, 1920.

2 Douglas, Harl R. Modern Methods in High School Teaching. Houghton Mifflin Company, New York, pp.323-4, 1926.

3 Stewart, R. M. and Getman, A. K. Teaching Agricultural Vocations. John Wiley & Sons, New York, p.246, 1927.

"project" when solved, "in the realm of the real, the material, and the practical".[1] Douglas makes little difference between the two, saying, "Both provide excellent pedagogical opportunities" in any educational field. It seems, therefore, that any controversy regarding project teaching is a matter of definition rather than application.

Project Teaching in Vocational Agriculture Education

Despite its many ramifications, true project teaching belongs essentially in the field of vocational education, and particularly vocational agriculture education. Man-made conditions cannot deter from its functionings. Its place in this field was made more secure by the passing of the Smith-Hughes Act in 1917, providing for federal aid for vocational education in the public schools. The outstanding part of the act relating to agriculture is found in Section Ten with these words: "That such schools shall provide for directed, or supervised practice in agriculture, either on a farm provided for by the school or other farm for at least six months per year". Here, at last, was national recognition of the basic principles of agricultural education believed

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1 Douglas, Harl R. Modern Methods in High School Teaching. Houghton Mifflin Company, New York, pp.336-39, 1920.

in for many decades. The final administration of this act, being largely left to the several states, allows a diversity of interpretations. Particularly is this true regarding the above quoted section, dealing with what has come to be called commonly the "project". Outstanding among these differences is the variety of types of projects found, including the class, group, and individual.

PURPOSE OF THE STUDY

Fifteen years have passed since the enactment of the Smith-Hughes Act. Since that time thousands of farm boys have passed through the vocational agriculture classrooms of the nation. Several thousand teachers have been their instructors under countless conditions. In the meantime many new opinions have been formed as to the most effective means of providing vocational training for the pupils in these classrooms, as intended by the act.

It is the purpose of this study to determine the most effective uses of the project in vocational agriculture classrooms.

TECHNIQUE USED IN THE STUDY

Source of Information

It was decided to go to the men in the field for material used in determining the effectiveness of the project method of teaching. In order that all conditions might be alike, only those teachers in one state, Kansas, were appealed to. The questionnaire method was used. Questionnaires were sent to each of the one hundred seventeen departments of the state, seventy being returned answered.

In addition to the use of the questionnaire, much available literature was studied. An attempt was made to obtain all possible points of view, including those given in articles written by persons not in any field of education. This material was to be used in forming conclusions, or in making comparisons regarding data obtained from the questionnaire.

The Questionnaire

The following is an exact duplication of the instruction sheet sent with each questionnaire. Included is a sample heading used for each farm enterprise covered in the survey.

Instructions for Filling out Questionnaire

A separate sheet is provided for questions related to each farm enterprise which may be taught. More enterprises are included in this questionnaire than probably are taught in any one department, so disregard those which you do not teach.

You will note the six teaching devices, "Analysis of the Job", "Assigned Reading", "Special Reports", "Local Surveys", "Special Skills", and "Recommended Practices", as main headings. Under each main heading, several methods (Individual, Group, Class, Teacher) are listed. You are asked to rank the devices and methods according to your estimation as to their effectiveness in teaching each enterprise job listed. Indicate your ranking by numbers, number one for first place, etc. Also place the numbers under the method under each heading deemed most effective. The following is an example:

No. of major projects in this enterprise No. of minor projects in this enterprise No. of continuation projects in this enterprise.....	Analysis of the Job				Assigned Reading			Special Reports			Local Surveys			Special Skills Taught			Recommended Practice Decided Upon		
	Individual	Group	Class	Teacher	Individual	Group	Class	Individual	Group	Class	Individual	Group	Class	Individual	Group	Class	Individual	Group	Class
SWINE ENTERPRISE																			
Worming the pigs.....	2	2	2			1			4			6			3		5		

In this case "Assigned Reading" is considered the most effective device using the group method. "Analysis of the Job" is second, using a combination of the "Individual", "Group", and "Class" methods. "Special Skills" is the third most effective device, using the "Class" method. In a similar way the other three devices are ranked. Note the use of three numbers to indicate a combination not an equal or tie ranking. There is no provision for tie ranking in this questionnaire.

Blank lines are provided for jobs not listed in the questionnaire. You are urged to use them wherever possible.

In addition to the other information, please give the following:

Name of school_____Address_____

Name of teacher_____No. boys in livestock production class_____. No. boys in crops production class_____. No. boys in third year class_____.

THE ANALYSIS OF DATA OBTAINED

As a basis for study, all data was arranged to show the following:

Part I

The number of pupils enrolled by classes.

The number of projects by types and enterprises.

Geographical location of departments reporting.

Part II

The rating of methods used in teaching.

The teaching devices used for each job.

The relation of methods to devices.

The relation of project selection to local importance of farm enterprises.

THE SUMMARIZATION OF RESULTS

Part I

The Number of Pupils Enrolled by Classes

TABLE I

The Enrollment of Pupils by Classes*

Class	Number of Classes	Enrollment	Mean	Median
Livestock	52	793	15.3	15
Crops	34	415	12.2	11
Third Year	15	244	16.3	16

*The mean total enrollment is 14.3 pupils per department.

The above data is taken from both half time and full time departments. The enrollment in the livestock classes is larger than in either of the other two classes. This is due probably to the state plan[1] recommended in Kansas, in which livestock is usually offered the first year. Crops being offered the second year, the classes naturally feel the effect of normal loss of enrollment found in school systems after the first year. The increased average enrollment of the third year classes and the decreased number of

1 Plans for Vocational Education in Kansas. Bulletin No.7, p.7, 1927-1932.

The Number of Projects by Types and Enterprises

TABLE II

The Number of Individual Vocational Agriculture Projects in Kansas

	Types of Projects						
	Major		Minor		Continuation		
Enterprise	Number	Per cent	Number	Per cent	Number	Per cent	Total
Crops--most frequent							
Wheat	46	62.1	19	25.6	9	12.1	74
Corn	216	80.5	15	5.5	37	13.6	268
Potatoes	49	72.0	10	14.7	9	13.2	68
Totals	311	75.8	44	10.7	55	13.4	410
Crops--least frequent							
Soy beans	19	90.4	2	9.5	0	0	21
Horticulture	8	47.0	8	47.0	1	5.8	17
Oats	17	50.0	16	47.0	1	2.9	34
Totals	44	61.1	26	36.1	2	2.7	72
Livestock--most frequent							
Beef	120	59.7	54	26.8	27	13.4	201
Swine	392	69.1	75	13.4	100	17.6	567
Totals	512	65.3	129	17.7	127	16.3	768
Livestock--least frequent							
Poultry	61	59.3	32	31.0	10	9.7	103
Sheep	42	53.1	21	26.5	16	20.2	79
Dairy	64	51.6	22	17.7	38	30.6	124
Totals	167	54.3	75	24.4	64	20.8	307

classes is explained by the fact that in many departments second and third year classes are combined. Of the departments reported, fifteen offer third year work and sixteen are half time. Seven departed from the usual custom of having livestock each year. Several teachers alternate between crops and livestock when they have but one class (half time).

Adaptability of the several farm enterprises to the three types of projects is indicated in Table II. The greater total number of livestock projects may be accounted for by the greater enrollment of livestock classes (Table II) However, there is an average of 1.35 livestock projects per boy as compared to 1.13 corresponding crop projects. This probably is due to the higher per cent of continuation projects in livestock enterprises. The higher percentage of livestock continuation projects does not necessarily indicate that livestock enterprises are more desirable for project study. It should be remembered that in most departments livestock is taught the first year (Table I), thus allowing one more year for possible continuation of projects started.

Further study of Table II shows a variation in the percentage of projects between the groups designated as "most frequent" and "least frequent". It is noticed that in each of the two divisions (crop and livestock)a greater percentage

of major projects is found in the group "most frequent", with the reverse true of the minor projects. It seems reasonable to believe that the lesser important (least frequent) projects are selected for individual pupil reasons, but may not be as suitable for major projects. This may be especially true regarding the three crop enterprises--soybeans, horticulture, and oats.

The relation of continuation project importance to the other two groups, as shown in Table II, should be considered. First of all it is noticed that the more important crop enterprises show a much higher percentage as continuation projects. In Kansas[1] wheat and corn are major farm enterprises, with soybeans, horticultural crops, and oats being raised more as supplementary crops to be used on the farm. It is reasonable then to find vocational agriculture boys using for continuation projects those crops they will most likely raise when they become farm operators.

Since the potato enterprise ranks (Table II) with wheat and corn, it deserves special attention. Reference to Table III will show that this farm enterprise is purely incidental to the farm business in general, excepting in a few

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1 Report of the Kansas State Board of Agriculture for the quarter ending December 1931.

localized communities. Yet, potatoes are selected with nearly as much importance as wheat--the dominating enterprise on Kansas farms. The explanation of this condition may be in the town boys enrolled, and those who have limited land on which to carry a crop project. This, in itself, would indicate project selection to meet a school requirement and not a vocational need. However, the selection of corn and swine projects as shown in Table II suggests the opposite condition.

A considerable degree of long time project planning is possible because of the selection of corn and swine projects. These two farm enterprises are interdependent and their development can very easily be the basis for a permanent farm business. In general, most farm boys in high school have limited time and opportunity. To establish a breeding herd of swine, and at the same time raise their feed is about the limit for the average farm boy in school.

It appears, therefore, that in general two large groups of vocational agriculture students are enrolled in the various departments. One group is uncertain as to future plans or unable to get started, and the other group is definitely started toward farm operation.

The Geographical Location of Reporting Teachers

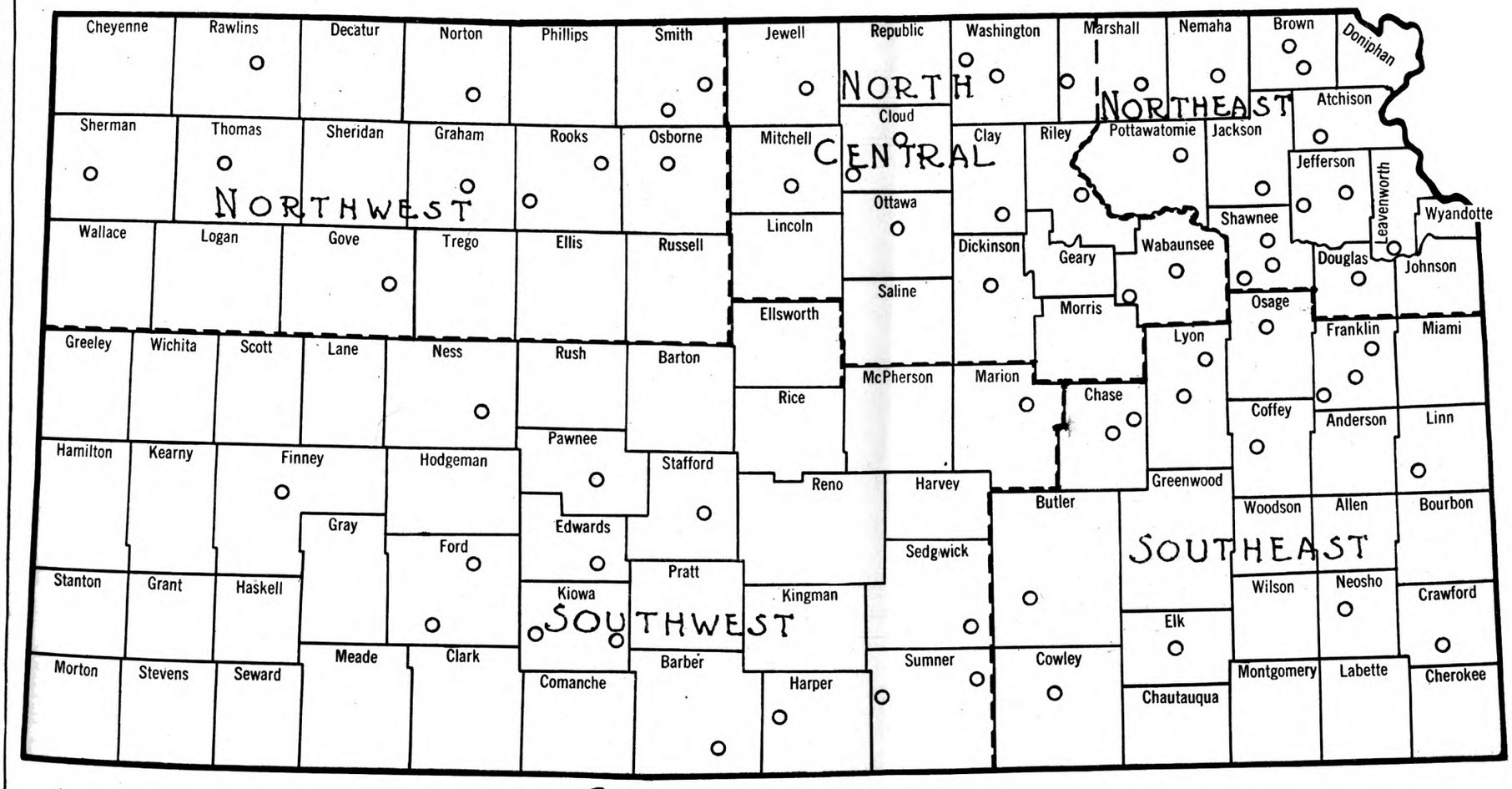

CHART 1*

LOCATION OF VOCATIONAL AGRICULTURE DEPARTMENTS.

*Division Into Districts according to the Kansas State Board of Vocational Education.

Part II

The Rating of Methods Used in Teaching

The preliminary tabulation showed that four enterprises reported on represented too few individual projects to make their data of value to the study as a whole. The eleven enterprises retained were further divided into two groups as shown in Table II. Further selection was made by retaining twelve jobs common to each of the eleven enterprises. A study of the teaching methods included a comparison of the two groups based on project importance (Table II) as well as the ranking of the methods themselves. By this means, it was intended to determine the effect of project selections on the choice of methods used. In Chart II, the data for both groups are listed in order.

An outstanding preference for the class method of teaching is indicated in this chart. Project importance seems to have little effect as the percentages run fairly uniform. Some significance might be in the fact that the larger project groups have a slightly lower percentage, using the class method, than the other groups have. This would indicate a tendency to do less class and more individual or group teaching where there are more projects involved.

CHART II

The Comparison of Effectiveness of Methods Used
for Teaching Each Job (Crop Enterprises)

Jobs	Individual	Group	Class
1. Determining the*	17.0%	7.3%	75.5%
Possibilities**	13.1%	9.4%	77.9%
2. Choosing the	14.7%	6.6%	79.2%
Variety	9.7%	8.5%	81.7%
3. Selecting the	15.6%	6.1%	78.1%
Seed	11.7%	13.6%	74.6%
4. Preparation of	15.2%	7.9%	76.6%
the Seed Bed	11.5%	6.5%	81.9%
5. Planting the	14.5%	5.9%	79.4%
Seed	13.5%	7.6%	88.0%

*Represents enterprises showing the greatest project selection.
**Represents enterprises showing the least project selection.
Outstanding variations regarding the group may possibly be due to special field trips for this purpose. At least these jobs may be adapted to field trip teaching. (See jobs 3, 6, and 11).

Chart II (Con't)

6. Cultivating the	19.9%	7.7%	72.1%
Crop	5.6%	14.5%	77.2%
7. Control of Insects	13.4%	5.7%	80.0%
and Enemies	12.9%	6.0%	80.5%
8. Harvesting the	14.5%	6.4%	78.9%
Crop	7.4%	3.7%	88.9%
9. Marketing the	10.1%	7.4%	82.4%
Crop	7.1%	6.0%	86.8%
10. Storing the	13.8%	7.4%	79.8%
Crop	6.9%	6.9%	86.1%
11. Treating the	17.4%	7.6%	75.0%
Seed	13.6%	11.0%	74.8%
12. Keeping the	28.4%	15.9%	55.4%
Records	14.1%	8.0%	77.7%

In considering the individual method, the reverse of what has been said about class teaching is true. The more projects, the more individual teaching is done. In every case the larger project groups show an increase over the smaller groups for this method of teaching.

Chart III shows that the class method of teaching is rated much higher than the individual and group methods. However, there is a decided increase in the individual and group methods. As in a similar table for the crops enterprise (Chart II), the individual and group methods are preferred, as a rule, for the larger enterprise groups. The increased preference for the individual methods, as shown for the livestock enterprises, should be further considered.

A study of Table I shows 793 pupils enrolled in the livestock classes as compared to 415 in the crops classes. The median number for the livestock classes is fifteen, and for the crops, eleven. Reference to Table II shows 462 total crop projects of all types as against 1074 corresponding livestock projects. To summarize, it is found that classes are not only larger in the livestock enterprises, but that more projects are involved for these enterprises than for others. Although there is an increased preference for the individual method here, there is less difference regarding groups of large and small project enterprises.

CHART III

The Comparison of Effectiveness of Methods Used for Teaching Each Job (Livestock Enterprises)

Jobs	Individual	Group	Class
1. Determining the Possibilities	23.2%	15.3%	61.3%
	19.3%	11.9%	69.2%
2. Deciding on the Type Business	23.2%	12.0%	64.7%
	30.1%	13.7%	56.0%
3. Choosing the Breed	29.3%	12.9%	57.7%
	27.8%	11.2%	60.2%
4. Selecting the Individual	24.0%	11.4%	54.5%
	13.4%	8.8%	77.7%
5. Housing the Animals	14.9%	8.6%	76.4%
	19.6%	11.8%	68.6%
6. Utilizing Home Grown Feeds	24.7%	13.9%	61.3%
	24.6%	9.4%	65.8%

Chart III (Con't)

7. Feeding the	28.4%	12.9%	58.5%
Animals	20.6%	7.3%	71.7%
8. Management of	26.0%	11.8%	62.0%
Breeding Stock	23.9%	9.7%	66.2%
9. Control of Diseases	16.8%	6.8%	65.2%
and Parasites	19.3%	18.0%	56.2%
10. Marketing L.S. and	27.8%	13.7%	59.4%
L.S. Products	27.8%	13.1%	65.1%
11. Fitting and	28.0%	7.2%	64.7%
Showing	33.6%	6.8%	60.3%
12. Keeping the	31.7%	13.3%	55.2%
Records	32.1%	6.0%	61.5%

The major significance in this chart is the indicated tendency toward individual instruction where more projects are involved. The actual relation between the class method and individual methods will be discussed later.

The comparative value of individual teaching and class teaching as rated by certain educators is not shared by Kansas teachers. Certain experiments performed in other states have given the reverse value of these two radically different methods. In Faulkner and Van Buren Counties in Arkansas, and in northwestern Arkansas, an experiment was performed to determine the relative value of individual and class methods of instruction.[1] The results gave a decided advantage to the individual method. However, these investigators expressed the belief that this value might not be constant for all enterprises.[2] Data obtained in this study appear to support this assumption (Charts II and III), as much higher percentages were reported for the livestock enterprises than for the crop enterprises.

Just why this difference of opinion exists between the men in the field and others is difficult to explain. It

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[1] Roberts, Roy W. University of Arkansas. Individual Instruction in Vocational Agriculture. Journal of Educational Research, 19, No.5, pp.344-52.

[2] Roberts, Roy W. University of Arkansas. A Further Study of Individual Instruction. Journal of Educational Research, 20, No.6, pp.261-7.

should be stated that the reporting Kansas teachers are successful teachers as is indicated by the size of their departments and their tenure. The very nature of the questionnaire excluded the indifferent teacher, therefore, their opinions are of value in this study.

A possible solution may be found by the following three nonvocational influences: Many teachers were first trained as nonvocational thinkers. Many teachers have been taught in nonvocational fields. Many boys are taught the tradition of how to live rather than how to make a living.[1]

With these factors in mind, it is conceivable that the difference of opinion lies not in actual effectiveness of the two methods, but rather in the measuring of effectiveness of vocational efficiency attained. It is very likely that a class taught as a whole would respond better to the usual written examinations than would the same class taught individually. From a vocational standpoint, this possibility would indicate faulty methods used and a reversion to the traditional classroom teaching. It has been suggested[2]

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1 Alexander, E. R. Methods of Teaching in Vocational Agriculture. Agricultural Education Magazine, 1, pp.5-6, December, 1929.

2 Williams, A. P. Progress in Methods of Teaching. Agricultural Education Magazine, 3, p.152, April, 1931.

that too much informational teaching is being done and not enough training in thinking problems through to the end. Dewey believes there should be a reorganization of "traditional divisions and classifications of knowledge".[1]

The Teaching Devices Used for Each Job

The second step in this study deals with teaching devices used by vocational agriculture teachers in Kansas. It has been pointed out that the class method is preferred as the most effective means of teaching the various jobs most common to each enterprise. The devices used are no less important.

Data obtained shows the devices, "Assigned Reading", "Analysis of the Job", and "Recommended Practices Decided Upon", ranking in the order given (Chart V). This seems to coincide with the class method mentioned above (also see Chart IV). Furthermore, these devices are well adapted to Allen's[2] four learning steps, preparation, presentation, application, and testing--preparation by "Analysis of the

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1 Dewey, John. The Way Out of Educational Confusion. Harvard University Press, Cambridge, Massachusetts, p.30, 1931.

2 Allen, C. R. The Man the Instructor and the Job. J. B. Lippincott Company, Philadelphia, Pennsylvania, p.129, 1919.

Job"; presentation by "Assigned Reading"; and application and testing by "Recommended Practices Decided Upon". However, it might be said that actual testing is found by project outcome, financial or otherwise. A possible reason for this evident liaison between the popular class method of teaching and the three above mentioned devices may be found by Higbee who suggests a confusion as to "What shall we teach? How shall we teach? Shall we train for general agriculture intelligence or for specific production?"[1] It is because of this he attributes Allen's[2] job analysis application (as applied to trades and industry) to agriculture. Therefore, "Analysis of the Job" seems definitely to be a teaching device rather than a method as suggested by several correspondents. This contention is advanced by Alexander[3] although Williams[4] goes further, believing that subject matter should be built around job analysis so as to prevent a too general treatment of technical material, thereby not

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1 Higbee, Edgar C. An Objective Method for Determining Certain Fundamental Principles in Secondary Agricultural Education. Doctor's Thesis, Columbia University, 1923.

2 Allen, C. R. The Man the Instructor and the Job. J. B. Lippincott Company, Philadelphia, Pennsylvania, p.129, 1919.

3 Alexander, E. R. Methods of Teaching in Vocational Agriculture. Agricultural Education Magazine, 1, pp.5-6, December, 1929.

4 Williams, C. V. Fundamentals Involved in the Organization and Conduct of Vocational Agriculture Schools and Classes. Kansas State Printing Plant, 1925.

CHART IV

The Comparative Effectiveness of Six Teaching Devices Used for Teaching Each Job

(crops)

Jobs	Devices	Large Projects	Small Projects
1. Determining the Possibilities			
	Analysis of Job	22.8%	27.9%
	Assigned Reading	33.7%	28.2%
	Special Reports	16.8%	13.3%
	Local Survey	15.5%	17.0%
	Special Skills	3.7%	3.1%
	Recommended Practice	7.4%	8.6%
2. Choosing the Variety			
	Analysis of Job	16.7%	17.6%
	Assigned Reading	35.7%	31.2%
	Special Reports	13.6%	12.0%
	Local Survey	15.1%	20.8%
	Special Skills	7.0%	3.2%
	Recommended Practice	11.4%	13.6%
3. Selecting the Seed			
	Analysis of Job	19.6%	18.8%
	Assigned Reading	29.5%	31.0%
	Special Reports	8.0%	9.0%

Chart IV (Con't)

	Local Survey	6.6%	9.1%
	Special Skills	22.5%	17.3%
	Recommended Practice	13.6%	14.3%
4. Preparation of Seed Bed			
	Analysis of Job	23.6%	16.6%
	Assigned Reading	32.9%	33.4%
	Special Reports	10.7%	8.8%
	Local Survey	10.7%	14.7%
	Special Skills	7.5%	10.4%
	Recommended Practice	14.3%	17.0%
5. Planting the Seed			
	Analysis of Job	21.2%	20.0%
	Assigned Reading	32.9%	31.5%
	Special Reports	8.9%	7.5%
	Local Survey	10.1%	13.9%
	Special Skills	9.9%	9.6%
	Recommended Practice	17.0%	18.7%
6. Cultivating the Crop			
	Analysis of Job	20.1%	18.7%
	Assigned Reading	31.9%	34.0%
	Special Reports	8.0%	7.5%
	Local Survey	10.1%	13.9%
	Special Skills	9.9%	9.6%
	Recommended Practice	17.0%	18.7%

Chart IV (Con't)

7. Control of Diseases, Insects, and Enemies		
Analysis of Job	22.0%	18.0%
Assigned Reading	34.2%	33.0%
Special Reports	9.1%	8.3%
Local Survey	8.8%	9.0%
Special Skills	11.5%	9.7%
Recommended Practice	13.8%	22.4%
8. Harvesting the Crop		
Analysis of Job	22.0%	18.0%
Assigned Reading	34.2%	33.0%
Special Reports	9.1%	8.3%
Local Survey	8.8%	9.0%
Special Skills	11.5%	9.7%
Recommended Practice	13.8%	22.4%
9. Marketing the Crop		
Analysis of Job	10.9%	23.7%
Assigned Reading	20.9%	28.0%
Special Reports	4.8%	9.8%
Local Survey	18.4%	10.3%
Special Skills	35.3%	12.7%
Recommended Practice	10.1%	15.9%

Chart IV (Con't)

10. Storing the Crop			
	Analysis of Job	20.8%	15.4%
	Assigned Reading	33.5%	25.8%
	Special Reports	11.4%	12.0%
	Local Survey	13.4%	10.4%
	Special Skills	7.1%	16.5%
	Recommended Practice	13.7%	16.8%
11. Treating the Seed			
	Analysis of Job	19.4%	18.6%
	Assigned Reading	31.3%	32.7%
	Special Reports	5.8%	6.4%
	Local Survey	13.4%	10.4%
	Special Skills	7.1%	16.5%
	Recommended Practice	13.7%	16.8%
12. Keeping the Records			
	Analysis of Job	26.3%	25.8%
	Assigned Reading	27.2%	31.0%
	Special Reports	8.4%	10.9%
	Local Survey	5.9%	4.2%
	Special Skills	12.0%	10.6%
	Recommended Practice	20.4%	10.9%

meeting the specific needs of the school or individual.

Further study of data obtained relative to teaching devices is found in Chart V. While the three devices mentioned before rank the same for each of the twelve jobs listed, there is no significant difference between enterprises having the greatest number of projects and those having the least. Although the difference is not great, there is a slightly greater percentage given to "Assigned Reading" for the lesser project enterprises. This would indicate less emphasis given to this particular device where more projects are involved. The reverse is true regarding the devices, "Analysis of the Job", and "Recommended Practices Decided Upon". The three apparently less important devices, "Special Reports", "Local Surveys", and "Special Skills", have a greater degree of variation between jobs, but no uniform relation between size of projects. Of these three devices, "Special Skills" is most important for such jobs as may be termed operative rather than managerial.

To summarize what has been said regarding teaching devices, it seems that classroom conditions are being adapted more or less to the more formal type of group instruction. While ideal learning conditions are being provided, comparatively little emphasis is being given to individual instruction.

CHART V

The Comparative Effectiveness of Six Teaching Devices Used for Teaching Each Job

(livestock)

Jobs	Devices	Large Projects	Small Projects
1. Determining the Possibilities			
	Analysis of Job	28.3%	25.3%
	Assigned Reading	28.3%	25.3%
	Special Report	17.3%	20.8%
	Local Survey	20.4%	20.8%
	Special Skills	1.7%	1.4%
	Recommended Practice	4.1%	1.7%
2. Deciding on the Type of Business in Which to Engage			
	Analysis of Job	16.4%	24.5%
	Assigned Reading	28.5%	30.5%
	Special Report	11.9%	14.9%
	Local Survey	21.3%	18.9%
	Special Skills	3.3%	4.5%
	Recommended Practice	8.6%	6.3%
3. Choosing the Breed			
	Analysis of Job	18.3%	22.1%
	Assigned Reading	31.1%	31.7%
	Special Report	13.1%	14.0%

Chart V (Con't)

	Local Survey	10.5%	18.4%
	Special Skills	13.1%	5.8%
	Recommended Practice	13.9%	5.7%
4. Selecting the Individual			
	Analysis of Job	21.0%	19.5%
	Assigned Reading	29.3%	30.9%
	Special Report	10.7%	7.2%
	Local Survey	9.9%	7.4%
	Special Skills	13.8%	23.4%
	Recommended Practice	15.4%	12.6%
5. Housing the Animals			
	Analysis of Job	21.8%	19.4%
	Assigned Reading	33.1%	34.0%
	Special Report	6.1%	8.7%
	Local Survey	9.9%	13.0%
	Special Skills	11.3%	9.7%
	Recommended Practice	18.3%	15.5%
6. Utilizing Home Grown Feeds			
	Analysis of Job	19.2%	21.5%
	Assigned Reading	27.4%	32.5%
	Special Report	12.2%	7.8%
	Local Survey	13.1%	13.7%
	Special Skills	7.0%	8.4%
	Recommended Practice	21.3%	16.3%

Chart V (Con't)

7. Feeding the Animals		
Analysis of Job	18.7%	23.7%
Assigned Reading	28.5%	37.6%
Special Report	6.8%	8.8%
Local Survey	7.3%	8.8%
Special Skills	13.7%	13.4%
Recommended Practice	18.8%	16.0%
8. Management of Breeding Stock		
Analysis of Job	21.8%	19.8%
Assigned Reading	31.4%	27.0%
Special Report	11.1%	16.2%
Local Survey	12.1%	9.0%
Special Skills	7.0%	11.3%
Recommended Practice	16.6%	15.7%
9. Control of Diseases and Parasites		
Analysis of Job	20.7%	22.3%
Assigned Reading	31.8%	31.1%
Special Report	10.4%	10.9%
Local Survey	4.8%	6.9%
Special Skills	15.4%	12.6%
Recommended Practice	16.7%	17.2%

Chart V (Con't)

10. Marketing Livestock and Livestock Products			
	Analysis of Job	25.2%	21.4%
	Assigned Reading	27.0%	30.1%
	Special Report	12.4%	10.8%
	Local Survey	10.2%	12.8%
	Special Skills	3.6%	5.7%
	Recommended Practice	21.7%	19.5%
11. Fitting and Showing			
	Analysis of Job	17.7%	16.0%
	Assigned Reading	27.5%	28.0%
	Special Report	11.8%	5.0%
	Local Survey	4.9%	6.3%
	Special Skills	20.6%	23.3%
	Recommended Practice	17.7%	19.8%
12. Keeping the Records			
	Analysis of Job	23.9%	25.3%
	Assigned Reading	22.6%	24.2%
	Special Report	9.0%	7.3%
	Local Survey	4.7%	5.2%
	Special Skills	12.2%	13.3%
	Recommended Practice	18.7%	17.9%

The Relation of Methods to Devices

There seems to be an adverse relation between the individual method of teaching and the three most important teaching devices (Chart VI), especially for the livestock enterprises. In ten jobs out of the twelve, the greater the percentage for the three devices, the lesser the percentage for this method. In other words, the more emphasis given to these devices, the less individual instruction is given in the case of livestock enterprises. The different and irregular relation found in the crop enterprises may be due to delayed application[1] of jobs studied. In any case, there is nothing in these devices to which the individual method of teaching could not be applied.

The Relation of Project Selection to Local Importance of Farm Enterprises

As the study progressed, it became evident that certain methods and devices advocated for project teaching by many educators were not preferred on the basis of effectiveness by teachers in the field. It was then decided to look

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[1] Hall, L. F. Manhattan, Kansas. Private Communication.

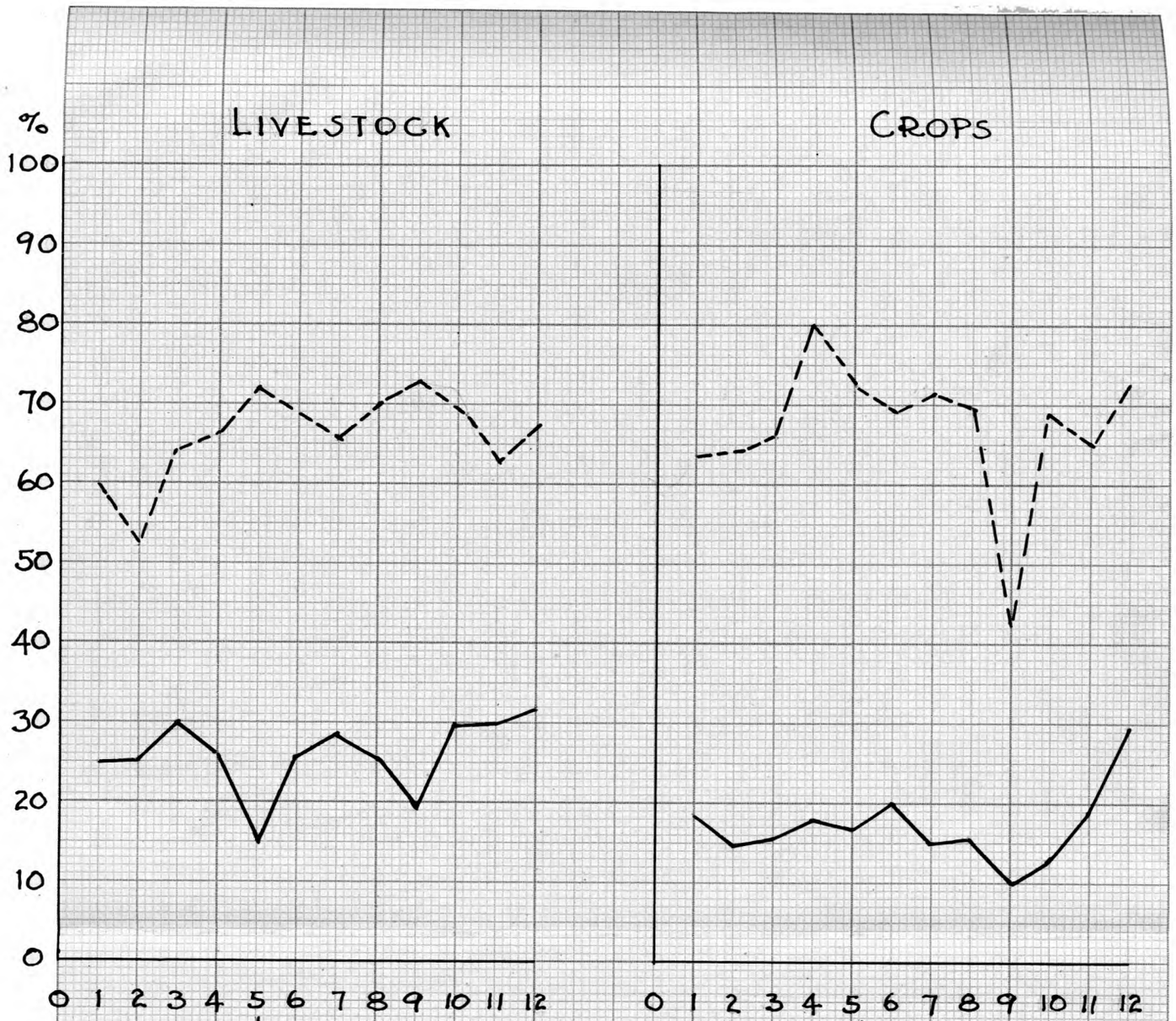

CHART VI

THE RELATION OF THE INDIVIDUAL METHOD TO THE THREE TEACHING DEVICES RATED HIGHEST

- - - - - - - Analysis of Job, Assigned Reading, Recomended Practice.

——————— Individual Method.

further into the project set up as a whole to find a possible reason for this difference of opinion. It was endeavored to find, as nearly as possible, how closely actual project selection approached the different conditions of pupils located in a state where there is a great variety of agriculture. The possibility of this study was apparent from the uniform geographical distribution of teachers responding to the questionnaires (Chart I). With a source of statistically accurate data obtainable for each county involved, such a comparison was deemed possible.[1] For purpose of comparison, the state was divided into five districts as used by the State Board for Vocational Education. The chief advantage of this division is that within each district the teachers have more in common locally, and also in their occasional district meetings which are given over to the discussion of specific problems. The rural population was determined by subtracting the total of the town population over one thousand from the total population for each district. While some farms are operated by persons living in these towns, just outside the city limits, in every locality there are some persons living who are not occupied

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1 Report of the Kansas State Board of Agriculture for the quarter ending December 1931.

agriculturally.

Although enterprise units per adult farmer are computed in the following table, projects per vocational agriculture boys are used for comparison. It was assumed that project study will be the same whether one or several units are involved for each project. In neither case is monetary value considered.

A study of Table III shows a lack of uniformity in the relation of project selection to local importance of farm enterprises. It is observed (Chart VII) that certain projects are selected to an equal extent throughout the state, while the corresponding enterprises have a considerable range of importance. Project selections from other enterprises follow closely the local enterprise importance. The significance of this difference between project selection and local enterprise importance may be seen by a comparison of enterprises on the basis of project importance (Table IV).

The group of enterprises representing the most projects and having a greater per cent of major projects (Table II) is found to have a greater variation between project selection and local enterprise importance than does the other corresponding group representing minor projects. Briefly then, major projects are selected with less regard to local importance of enterprises than are the minor projects.

CHART VII

The Relation of Individual Project Selection
to Farm Enterprises in Kansas

District	Enterprise	Projects Per Boy	Units Per Farm Capita
North Central			
	Beef	.187	2.51
	Dairy	.127	.75
	Sheep	.018	.29
	Swine	.492	2.05
	Poultry	.131	1.8 (doz.)
	Oats	.003	2.25
	Wheat	.056	8.68
	Corn	.184	7.68
	Soybeans	000	.05
	Potato	.09	.05
South East			
	Beef	.185	1.85
	Dairy	.094	.5
	Sheep	.118	.28
	Swine	.339	.9
	Poultry	.114	.9 (doz.)

Chart VII(Con't)

	Oats	.043	1.81
	Wheat	.071	1.45
	Corn	.249	4.42
	Soybeans	.043	.77
	Potato	.059	.03
South West			
	Beef	.121	2.35
	Dairy	.089	.65
	Sheep	.096	.44
	Swine	.469	.93
	Poultry	.06	1.3 (doz.)
	Oats	.017	2.14
	Wheat	.1	25.52
	Corn	.039	5.34
	Soybeans	.006	.013
	Potato	.057	.032
North West			
	Beef	.115	3.23
	Dairy	.163	.79
	Sheep	000	.49
	Swine	.625	2.45
	Poultry	.083	1.3 (doz.)
	Oats	.003	.7
	Wheat	.043	24.1
	Corn	.101	13.56
	Soybeans	000	00
	Potato	.029	.04

Chart VII (Con't)

North East			
	Beef	.117	1.83
	Dairy	.101	.72
	Sheep	.093	.31
	Swine	.42	1.82
	Poultry	.104	1.3 (doz.)
	Oats	.016	1.98
	Wheat	.016	2.31
	Corn	.247	7.67
	Soybeans	.013	.026
	Potato	.066	.12

Explanation of Data Given in the Above Chart. The data was obtained from teachers in the field by form of a questionnaire. Data was also taken from the report of the Kansas State Board of Agriculture for the quarter ending December, 1931.

The districts refer to the Kansas Vocational Agriculture Association Districts as outlined by the State Board for Vocational Education.

Units refer to the number of head of livestock or acres of crops with the exception of poultry as indicated. The farm population of counties is listed in districts. This number is obtained by deducting city population of over one thousand from the total population. (See the Report of the Kansas State Board of Agriculture) The farm population is then divided into the enterprise units to obtain the results tabulated.

The number of projects per boy is obtained by dividing the total enrollment for each district into the total number of projects reported for each enterprise.

It is difficult to explain why minor projects should follow local practices more closely than do the major projects. It is conceivable that minor projects, being altogether elective, are selected by the boy according to the dictates of his own interest. This would indicate teacher influence in the selection of the major projects, not according to individual preference but according to adaptability to classroom teaching.

This lack of uniformity was foreseen by Davidson in 1923 when he stated, "A uniform program of proper procedure in project work is not likely to be worked out for a state with the varying agricultural conditions found in Kansas".[1] He believed the primary objective of project teaching was to encourage each student to think for himself. That "It is a slow and tedious job with many students" will be agreed to by any teacher. However, it is not an impossible one as is shown by the number and selection of minor projects.

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[1] Davidson, A. P. The Home Project in Vocational Agriculture. Vocational Education Magazine, 2, pp.18-9, September 1923.

TABLE III

The Distribution of Individual Vocational Agricultural Projects in Kansas

	North Central	South East	South West	North West	North East
Farm Population	101,252	153,509	114,139	63,051	127,694
Vocational Agricultural Enrollment.....	266	253	279	276	363
Total Projects Reported.....	344	354	297	202	341
Responses.....	10	12	13	11	15
Beef.....	*1.87	.185	.121	.115	.117
	**2.51	1.85	2.35	3.23	1.83
Dairy.....	.127	.094	.089	.163	.101
	.75	.50	.65	.79	.72
Sheep.....	.018	.118	.096	.490	.093
	.29	.28	.44	.490	.31
Swine.....	.492	.339	.469	.626	.420
	2.05	.90	.93	2.45	1.82
Poultry.....	.131	.114	.06	.083	.104
	21.58	11.4	15.69	15.88	15.21
Oats.....	.003	.043	.017	.003	.016
	2.25	1.81	2.14	.70	1.98
Wheat.....	.056	.071	.10	.043	.016
	8.68	1.45	25.52	24.10	2.31

*Number of projects per student.
**Enterprise units per farm capita.

Table III (Con't)

Corn.....	.184	.249	.039	.101	.247
	7.68	4.42	5.34	13.56	7.67
Soybean.....	.000	.043	.006	.000	.013
	.001	.077	.013	.000	.026
Potato.....	.09	.059	.057	.029	.066
	.05	.03	.032	.04	.12

TABLE IV

The Relation of Project Importance to Farm Enterprises in Kansas

Enterprise Groups	Unit Per Capita Project Per Boy Ratio		Low Ratio Percentage of High Ratio	
	Low	High		
Most Projects				
Beef	1.3	29.0	4.49	
Swine	1.9	4.3	44.18	
Wheat	20.4	560.4	3.6	
Corn	17.3	136.9	12.6	
Potato	.5	1.8	27.7	
			18.45	(average)
Least Projects				
Dairy	4.8	7.3	65.7	
Sheep	1.0	16.1	6.2	
Poultry	100.0	191.3	52.5	
Oats	125.8	750.0	16.7	
Soybean	.8	2.1	4.0	
			37.0	(average)

CONCLUSIONS

The scope of the present topic is merely to review the more pertinent findings of the study, together with the observation of certain relations not directly presented by the data.

Enrollment

The livestock production classes are greater in number than either crop production or third year classes and have the largest total enrollment. Most departments offer livestock production the first year which accounts for the greater total enrollment. Crop production and third year classes are smaller in average enrollment due to the decrease prevalent in all school systems after the first year.

Third year classes are smallest in number and have the smallest total enrollment, but have the largest average enrollment of the three classes. This is due to many departments offering but the first two years in vocational agriculture. The larger average enrollment is due to combining first and second year classes for the third year classes.

Crop production classes are intermediate in number and total enrollment but they are the least in average size.

These classes, which are usually taught the second year, show the loss of enrollment characteristic of school systems but to a somewhat lesser extent. The fact that these classes are smaller in number than the livestock production classes may be accounted for by the fact that third year classes usually include crop production classes.

Projects

Major projects in crop enterprises comprise 73.6% of the total crop projects, while 63.1% of all livestock projects are major projects. The higher percentage of major projects in the crop enterprises is partially accounted for by the fewer numbers of continuation projects which go to make up the total of all crop enterprises.

The number of livestock projects per boy is 1.35 as compared to 1.13 crop projects per boy. The increased number of livestock projects per boy may be found in the continuation projects.

Livestock projects are selected for minor projects more than are crop projects, the percentages of the total projects being 18.9% and 14.8% minor projects respectively.

A greater percentage of major projects is found in the more important farm enterprises than for the lesser important farm enterprises. The reverse is true for minor

projects.

A greater percentage of continuation projects is found in the more important crop enterprises than for the other enterprises. The reverse is true for livestock continuation projects.

Teaching Methods

The class method of teaching is preferred to the individual and group methods for all enterprise jobs. This indicates "mass" teaching of the traditional type.

The tendency toward individual teaching is greater in those enterprises representing the greatest number of projects. There is a possibility that as project teaching becomes better established in vocational agriculture classrooms, more individual and group teaching will be done.

The group method is considered by Kansas teachers as being least effective of the three methods studied. This may be due to a lack of uniform project objectives which would make unit project study impossible.

Teaching Devices

The devices, "Assigned Reading", "Analysis of the Job", and "Recommended Practices Decided Upon", are considered most effective in the order named for the jobs of all

enterprises. This is to be expected in the light of the preference given for the class method of teaching. While effective classroom teaching may be done with these devices, individual initiative is curtailed by "mass" attack of the problems.

There is an increase in preference for "Analysis of the Job" device, and a corresponding decrease for the device, "Assigned Reading", for enterprises representing the greatest number of projects. Since this same tendency is true regarding the individual method for these same enterprises, it might seem that a trend toward individual solution of problems exists. If this is true, it is reasonable then to expect more effective teaching in the future by means of the project.

The devices, "Local Survey", and "Special Reports" are of nearly equal importance for all enterprises. "Special Skills" rank lowest in rated effectiveness, but is best adapted to enterprises involving the fewest projects. Since the individual method is rated so low, it is to be expected that these devices would have a corresponding rating, as they are purely an individual matter with the pupils.

Project Selection

Swine and corn projects are more important in each of the five districts of the state with the exception of the southwest district where wheat ranks over corn.

Beef, swine, and corn projects are selected with less regard to local importance than are sheep, dairy and poultry projects.

Minor project selections follow more closely local enterprise importance than do the major projects. Since the selection of minor projects is usually less closely supervised than are the major projects, it appears that boys realize their own needs better than does the teacher. In other words, it may seem that major projects are too often selected to fit the needs of classroom situations.

Potato projects have a uniform importance throughout the state, yet this enterprise is of commercial importance in limited areas. Here, again is evidence of a lack of project selection with regard to local conditions. However, there is undoubtedly considerable "carry over" from the potato enterprise to other crop enterprises.

Swine projects have a uniform importance in each district of the state. The swine enterprise offers ideal project study, and, at the same time, may form an important

part of a farm diversification program.

Wheat is not commonly used for individual projects in Kansas. This may be an indication of a tendency for Kansas farmers to discontinue one-crop farming.

As a result of this study, the following observations are made:

1. Vocational agriculture classes are being taught largely by the traditional methods of study and recitation.

2. The project has not yet formed an integral part of the vocational agriculture teaching program. It is still "something extra".

3. Project selection is based more on adaptability to classroom teaching than to local conditions.

4. There is a tendency toward more individual teaching of those enterprises represented by the most projects.

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APPENDIX

Directory of Respondents

Address	Name
Abilene	Fred D. Allison
Alma	W. F. Hearst
Alta Vista	Roy Bonar
Altamont	Roy E. Clegg
Alton	Fred Schultis
Americus	L. J. Miller
Argonia	L. J. Simmons
Arkansas City	T. C. Faris

Attica	B. R. Petrie
Atwood	A. H. Hilpert
Auburn	Thomas Bruner
Augusta	Sam J. Smith
Bazine	W. E. Stone
Beloit	Fred T. Rees
Burlington	Carl Heinrich
Chanute	W. R. Harder
Cherokee	F. F. Lampton
Colby	Robert Fort
Columbus	P. W. Hansen
Concordia	A. G. Jensen
Cottonwood Falls	A. W. Miller
Delphos	H. W. Schaper
Effingham	D. L. Signor
Fairview	R. E. Regnier
Ford	K. M. Hall
Frankfort	E. M. Knepp
Garden City	J. D. Adams
Glasco	O. L. Norton
Goff	M. C. Kirkwood
Goodland	R. H. Perrill
Havensville	J. R. Hindle
Hill City	S. S. Bergsma
Howard	J. A. Watson
Hoyt	R. L. Welton
Kiowa	J. A. Johnson
Lawrence	William R. Essick
Lebanon	F. A. Blauer
Manhattan	H. W. Schmitz
Mankato	G. S. Quantic
McLouth	A. A. Haltom
Meriden	E. R. Button
Miltonvale	John Kerr
Morrowville	John Moyer
Mound City	E. L. Raines
Mullinville	H. A. Noyce
Mulvane	E. P. Mauk
Norton	Raymond G. Frye
Ottawa	C. O. Banta
Oxford	John Lowe
Powhattan	Albert Brown
Quinter	J. F. Shea
Ramona	T. G. Betts
Reading	H. C. Woods
Saffordville	M. O. Castle
Seaman (N. Topeka)	V. O. Farnsworth

Smith Center	M. L. Otto
Spearville	Charles Mantz
Stafford	Dwight Patton
Tonganoxie	O. M. Williamson
Trousdale	J. R. Wood
Wakefield	L. J. Schmutz
Washburn	H. A. Stewart
Washington	H. H. Brown
Waterville	J. R. Wells
Webster	A. A. Glenn
Wellsville	V. E. Frye
Williamsburg	H. T. Willis
Winfield	Ira L. Plank
Woodston	Joe Greene
Zook	G. W. Stricklin